Amendments to the Claims

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1. (Currently amended) A method for estimating the latency of aperiodic tasks in ~~systems~~ a system with simultaneous scheduling of aperiodic messages and periodic transmissions on a common bus, comprising the steps of:

(a) using predefined periodic transmission times, calculating data transition points between periodic and aperiodic message transmissions intervals for ~~hyperperiods~~ a hyperperiod of interest in said system;

(b) using said data transition points to produce a series of aperiodic latency estimation inflection points;

(c) collecting data points of aperiodic message transmissions for the ~~hyperperiods~~ hyperperiod of interest in said system; and

(d) estimating the aperiodic latency probability at an inflection point in ~~said~~ the hyperperiod of interest as being equal to the number of sample data points less than or equal to the said inflection point divided by the total number of collected aperiodic latency sample data points, said data points forming a data point plat that is assumed to be linear between said aperiodic latency inflection paints.

2. (Currently amended) The method of claim 1, wherein said data points are plotted on the X axis of a graph and the empirical probability that the latency exceeds the time is plotted on the Y axis of said graph, such that latency estimation inflection points are selected along said X axis for ~~said~~ the hyperperiod of interest to visually represent values at which higher priority periodic message traffic will impact or cause a point of inflection on aperiodic latencies.

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3. (Original) The method of claim 1, wherein said aperiodic latency estimation inflection points are formed by binning said aperiodic data points using fluid flow analysis dependent only on the timeline defined by periodic traffic.

4. (Original) The method of claim 3, wherein said fluid flow analysis employes an algorithm.

5. (Currently amended) In a method for estimating the latency of aperiodic tasks in ~~systems~~ a system with simultaneous scheduling of aperiodic messages and periodic transmissions on a common bus, wherein predefined periodic transmission times are used to calculate data transition points between periodic and aperiodic message transmissions intervals for a hyperperiod ~~hyperperiods~~ of interest in said system, data points of aperiodic message transmissions for the hyperperiod ~~hyperperiods~~ of interest in said system are collected and the aperiodic latency probability at an inflection point in ~~said~~ the hyperperiod of interest is estimated as being equal to the number of sample data points less than or equal to the said inflection point divided by the total number of collected aperiodic latency sample data points, said data points forming a data point plot that is assumed to be linear between said aperiodic latency inflection points, the improvement comprising:

using said data transition points to produce a series of aperiodic latency estimation inflection points.

6. (Currently amended) The method of claim 5, wherein said data points are plotted on the X axis of a graph and "the empirical probability that the latency exceeds the time is plotted m the

Y axis of said graph, such that latency estimation inflection paints are selected along said X axis far ~~said~~ the hyperperiod of interest to visually represent values at which higher priority periodic message traffic will impact or cause a point of inflection on aperiodic latencies.

7. (Original) The method of claim 5, wherein said aperiodic latency estimation inflection points are formed by binning said aperiodic data points using fluid flow analysis dependent only on the timeline defined by periodic traffic.

8. (Original) The method of claim 7, wherein said fluid flow analysis employs an algorithm.

9-12. (Cancelled).

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